

REMARKS

Status Summary

In this Amendment, claim 45 is canceled and claims 58-69 are added. Therefore, upon entry of this Amendment, claims 1-69 will be pending.

Claim Rejections 35 U.S.C. § 112

Claim 46 was rejected as failing to contain sufficient antecedent basis for the limitation "static routing key table." Claim 46 has been amended to correct the antecedent basis error. Accordingly, it is respectfully submitted that the rejection of claim 46 should now be withdrawn.

Claim Rejections 35 U.S.C. § 102

Claim 1, 29, 44, and 54 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,515,997 to Feltner et al. (hereinafter, "Feltner"). This rejection is respectfully traversed.

The present invention, as claimed in independent claims 1, 29, 44, and 54, includes methods, systems, routing nodes, and data communications modules for allowing IP nodes to dynamically update SS7 routing key information in a database maintained by a signaling message routing node. More particularly, each of these claims has been amended to recite that a routing key registration message sent to a signaling message routing node includes SS7 routing key information, where the SS7 routing key information includes at least one of an originating point code (OPC), a destination point code (DPC), a service indicator (SI), a subsystem number (SSN), and

a circuit identification code (CIC). The signaling message routing node receives the routing key registration messages, extracts the parameters from the messages, and updates the corresponding fields in an SS7 routing key database entry. Thus, the invention claimed in independent claims 1, 29, 44, and 54 allows IP nodes to dynamically register SS7 routing key information, such as an OPC, a DPC, an SI, a CIC, and an SSN, and to use this information to direct subsequently routed signaling messages that include these parameters to or from the IP node.

There is absolutely no disclosure in Feltner of a method, a system, a routing node, or a data communications module that allows IP nodes in the IP network to send routing key registration messages including SS7 routing keys, such as OPC, DPC, CIC, SI, or SSN, to a routing node, and wherein the routing node uses the information extracted from the registration message to update corresponding fields in an SS7 routing key database entry. According to Feltner, NAC 100 sends a registration message to IP-SS7 gateway 108. However, the registration message only includes information that associates IP addresses of subscribers 126 with E.212, E.213, E.214, and E.164 addresses. (See column 7, lines 60-63 of Feltner.) E.212, E.214, E.213, and E.164 addresses are not SS7 routing keys, such as the OPC, DPC, SI, CIC, or SSN, as now claimed in the independent claims of the present application. Rather, these addresses are directory numbers associated with subscribers. There is absolutely no disclosure in Feltner that the registration messages include any of the SS7 routing key parameters as claimed. Accordingly, it is respectfully submitted that the rejection of claims 1, 29, 40, 44 and 54 as anticipated by Feltner should now be withdrawn.

Claims 11 and 12 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Pre-Grant Publication No. US 2001/0029182 to McCann et al. (hereinafter, "McCann"). This rejection is respectfully traversed.

Claim 11 has been amended to recite that the signaling message includes SS7 routing key information, where the SS7 routing key information includes at least one of an originating point code (OPC) and a destination point code (DPC). The OPC and/or the DPC is used to perform a lookup in a first routing key table. If the result of the lookup in the first routing key table is successful, the message is routed based on routing information received from the first routing key table. If the lookup in the first routing key table is not successful, a second routing key table is searched using the OPC and/or the DPC. In response to locating a match in the second routing key table, the signaling message is routed using the information returned by the second routing key table.

There is no disclosure in McCann of performing lookups in first and second routing key tables using the OPC and/or the DPC in a received signaling message. The G-PORT and GTT tables in Figures 5A and 5B of McCann are indexed by mobile identification numbers, such as MSISDN numbers. MSISDN numbers are directory numbers associated with mobile subscriptions. Neither parameter comprises an SS7 routing key, such as an OPC and/or a DPC. Accordingly, it is respectfully submitted that the rejection of claims 11 and 12 as anticipated by McCann should now be withdrawn.

Claim Rejections 35 U.S.C. § 103

Claims 30-32, 41-43, 45, 47, and 55-57 were rejected as unpatentable over Feltner. This rejection is respectfully traversed.

Claims 30-32 and 41-43 depend from independent claim 29. Claim 45 has been canceled. Claim 47 depends from claim 44. Claims 55-57 depend from independent claim 54. As stated above with regard to the rejection of independent claims 29, 44, and 54 as anticipated by Feltner, each of these claims now recite that the routing key registration message includes SS7 routing key information, including at least one of an OPC, a DPC, an SI, an SSN, and a CIC. The signaling message routing node uses the SS7 routing key information to update corresponding SS7 routing key data in a routing key database entry. There is absolutely no teaching or suggestion in Feltner that the registration message sent from NAC 106 to IP-SS7 gateway 108 includes SS7 routing key data, such as an OPC, a DPC, an SI, an SSN, or a CIC. In the registration message illustrated in Figure 7 of Feltner, the only parameters that are included are IP addresses, TCP ports, numbering plans, and number series of subscribers. None of these parameters even remotely suggests SS7 routing key information as now claimed. As stated above, the numbering plan and number series information included in the registration messages of Feltner are directory numbers associated with subscribers. Moreover, rather than teaching dynamic registration of SS7 routing keys, Feltner teaches that GSM applications include IP addresses and port numbers and that the IP addresses and port numbers are used to route messages to these nodes. For example, Feltner states:

Each GSM application, for example MSC 152, VLR 154, and HLR 156, may be assigned a unique IP address and TCP port number combination. In addition, each GSM application is also assigned a unique E.164 number. The IP-SS7 gateway 108 has a translation function or table 128 to translate an E.164 number to an IP address and TCP port number combination. The IP-SS7 gateway 108 uses this translation function 128 upon receiving a GSM MAP message from the PLMN to determine which GSM application the message is destined for. For the HLR 156 application, each subscriber serviced by the HLR has a unique E.212 or E.214 number. These numbers are included in the translation table 128 of the IP-SS7 gateway, as well. (See column 9, lines 31-45 of Feltner).

From this passage, Feltner teaches that translation function 128 sends SS7 messages, such as MAP messages, to MSC 152, VLR 154, and HLR 156 using IP addresses, rather than SS7 routing keys, such as OPC, DPC, CIC, SSN, and SI. Accordingly, because Feltner teaches that the nodes in the SS7 network require IP addresses for communication with IP nodes, it is respectfully submitted that Feltner teaches away from the invention as claimed. Accordingly, it is respectfully submitted that the rejection of claims 30-32, 41-43, 45, 47, and 55-57 as unpatenable over Feltner should now be withdrawn.

Claims 2-10, 13-20, 22, 33-39, and 48-53 were rejected as unpatentable over Feltner in view of McCann. This rejection is respectfully traversed.

As a preliminary matter, McCann is not prior art under 35 U.S.C. § 102(e)/§ 103 to the claims of the present application, because at the time the invention was made, the subject matter disclosed in McCann was commonly owned with the present invention. Under 35 U.S.C. § 103(c), subject matter that qualifies only as prior art under 35 U.S.C. § 102(e), 35 U.S.C. § 102(f) or 35 U.S.C. § 102(g) is not prior art under 35 U.S.C. § 103 if the subject matter and the claimed invention were commonly owned at

the time the invention was made. Since McCann was commonly owned with the present invention at the time the invention was made and only qualifies as prior art under 35 U.S.C. § 102(e), it is respectfully submitted that for this reason alone, the rejection of claims 2-10, 13-20, 22, 33-39, and 48-53 should be withdrawn.

Moreover, even assuming that McCann is prior art, the combination of Feltner and McCann fail to teach the invention as claimed. As stated above, Feltner fails to teach or suggest sending registration messages including SS7 routing key information, such as OPC, DPC, SI, SSN, or CIC, and using these fields to update corresponding fields in a routing key database. Instead, Feltner is directed to registering associations between IP addresses of mobile subscribers and directory numbers of the mobile subscribers with an IP-SS7 gateway. In addition, rather than teaching that messages are routed to SS7 nodes using dynamically registered SS7 routing key information, Feltner discloses that the SS7 nodes are required to have IP addresses. McCann is not directed to dynamic registration of SS7 routing key information. Rather, McCann is directed to routing signaling messages associated with ported mobile subscribers. Accordingly, for this additional reason, the rejection of claims 2-10, 13-20, 22, 33-39, and 48-53 as unpatentable over Feltner in view of McCann should be withdrawn.

Claims 23-28 were rejected under 35 U.S.C. § 103(a) as unpatentable over Feltner in view of U.S. Patent No. 5,650,998 to Angenot et al. (hereinafter, "Angenot"). This rejection is respectfully traversed. Claim 23 recites a method for performing reliable call signaling communications over an IP network using dynamic routing key registration. Claim 23 has been amended to recite establishing first and second IP connections between a signaling gateway and a first IP node. When one of the IP

connections fails, a routing key registration message including at least one SS7 routing key is sent to the signaling gateway to dynamically divert signaling messages over the other IP connection. Thus, claim 28 recites a method for dynamically diverting traffic from one IP link to another IP link using dynamic registration of an SS7 routing key.

As stated above with regard to the rejection of the claims based on Feltner, the registration messages according to Feltner do not include any SS7 routing key information. The only information included in the messages is IP addresses, TCP port numbers, and directory numbers of mobile subscribers. In addition, Feltner nowhere teaches sending such messages in response to connection failure. Thus, Feltner alone fails to teach the invention claimed in claim 23. Angenot fails to teach the elements of claim 23 missing from Feltner. Angenot is directed to reassigning traffic in an SS7 network. It's directed only to changeover and change back in an SS7 network. There is absolutely no teaching or suggestion of dynamically registering SS7 routing keys and using the dynamic registration to route messages from one failed IP signaling link to another IP signaling link. Accordingly, because the combined disclosures of Feltner and Angenot fail to teach the invention claimed in claims 23-28, it is respectfully requested that the rejection of these claims be withdrawn.

#### Allowable Subject Matter

Claims 21 and 46 were objected to as being dependent upon a rejected base claims but were indicated as allowable if rewritten in independent form including all of the limitations of the base claims and intervening claims.

Claim 21 depends from claim 11. Claim 21 has been rewritten to include all of the limitations of claim 11. Accordingly, it is respectfully submitted that claim 21 should now be allowed.

Claim 46 originally depended from claim 44. However, claim 46 was rejected under 35 U.S.C. § 112 above as failing to contain antecedent basis for the static routing key table which appeared in claim 45. Accordingly, claim 46 has been rewritten to include all of the limitations of claim 44 and 45. Accordingly, it is respectfully submitted that claim 46 should now be allowed.

#### New Claims

New claims 58-69 are proposed to be added. Claims 58, 59, 61, 62, 64, 65, 67, and 68 are directed to using a flag to indicate whether a routing key registration message is intended to replace an existing entry in the routing key registration database or to be included as a new entry for load sharing purposes. Support for these claims as found, for example, on page 15, lines 1-11 of the present specification.

Claims 60, 63, 66, and 69 are directed to maintaining a static routing key database. Support for these claims as found, for example, in Figure 8 of the present specification.

Since the new claims include all of the limitations of their respective independent claims, it is respectfully submitted that these claims are patentable for the same reasons as the independent claims, in addition to the new features recited in these claims.

#### CONCLUSION



In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and such action is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

DEPOSIT ACCOUNT

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

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Date: June 1, 2004

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Enclosures